

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>After the Bubble: Sustaining Economic Prosperity.</i> January 2002.	Bay Area Economic Forum, Bay Area Council, Association of Bay Area Governments	McKinsey & Company	The benchmarking of Bay Area performance against other regions, and an examination of the drivers of past Bay Area performance.	Clusters: Computers & Electronics; Telecommunications; Multimedia; Bioscience; Environmental Technology; Banking & Finance; and Tourism.	Nine Bay Area county region.	The report updates the economic profiles, and continues the benchmarking, in the 1999 study, <i>The Bay Area: Winning in the New Global Economy</i> . It also examines the drivers of past Bay Area performance, and the prospects for for continued economic success. Performance by industry cluster was evaluated using a variety of criteria, including output per employee, output growth, employment, and employment concentration. The report provides SIC Code Mappings that show the four-digits SIC codes that compose a cluster, and the percent of each code that was included.	Critical issues that could prevent the Bay Area from acheiving its potential include the overall high cost of living, the lack of affordable housing, insufficient transportation infrastructure, and underperforming schools. The report also discusses various initiatives by organizations to address these issues.
<i>The Bay Area: Winning in the New Global Economy.</i> September 1999	Bay Area Economic Forum and Bay Area Council	McKinsey & Company	Follow-up report to a 1996 economic profile prepared by McKinsey & Co. Provides a comparative analysis of economic performance with other US regions.	Clusters: Computers & Electronics; Telecommunications; Multimedia; Bioscience; Environmental Technology; Banking & Finance; and Tourism.	Nine Bay Area county region.	The report updates the economic profiles prepared in a 1996 study, <i>The Bay Area: Leading the Transition to a Knowledge-Based Economy</i> . More than 35 indicators of performance are evaluated and analyzed against seven other metropolitan areas -- Boston, Charlotte, Houston, Los Angeles, New York, Phoenix, and Seattle. The areas were selected either because of their similar size, industry cluster composition, and international trade status, or because they are well-regarded, high-growth areas. An example of the global supply chain for Bay Area electronics companies is shown, as weel as the cross-border flows of labor and intellectual capital for Bay Area bioscience companies.	The Bay Area is a unique region, combining cutting-edge knowledge, outstanding business performance, and a desirable lifestyle. The numerous recommendations to maintain those attributes include long-term planning, versus just short-term problem solving, and increased cooperation between public and private leaders.
<i>Beyond Consolidation: A study of the Continuing Transformation of Aerospace and Defense in Southern California</i> , 1998	LARTA, LAEDC	A.T. Kearny	To better understand the long-term effects of the industry downturn. Retain the high technology, high value-added sectors of the aerospace and defense industry.	Aerospace and Defense	Southern California	Surveys and interviews with key industry executives and economic data. Respondents included primes, major subcontractors, and lower-tier suppliers of all sizes. Economic data appears to be from respondents and A&D SIC code definition (372, 376, 381, plus addl mixed supplier industries).	Form senior California aerospace & defense coalition. Focus economic development programs. Implement programs to protect suppliers.
<i>Biomedicine: The Next Wave for California's Economy</i> . January 2002.	California Healthcare Institute (CHI)	PricewaterhouseCoopers	A call to the biomedical community to engage with political leaders to ensure that the leaders share industry's vision and understand how their actions influence the next wave of California's bioscience innovation.	Biomedical	Northern California (Bay Area, Sacramento, Santa Rosa) and California	CHI & Pricewaterhouse (PWC) administered a web-based industry survey over three weeks to 2,100 companies who conduct business in California in the areas of pharmaceuticals, diagnostics, or medial equipment. Analysis of employment, trade, and NIH funding was conducted using both primary and secondary data. Employment and wage figures were generated using state-level data from California Employment Development Department and county-level data from U.S. Bureau of Labor Statistics. Employment in the area of academic research was estimated via CHI survey of research centers and medical schools. Export totals were calculated using the Exporter Location Series from the U.S. Census Bureau. Funding to California from the National Institutes of Health (NIH) was calculated using data made available by the NIH.	Collaboration is the key, since each threat to the industry jeopardizes all the interconnected researchers, companies, suppliers, customers, and patients who depend upon innovation.
<i>Blueprint for a High-Tech Cluster: The Case of the Microsystems Industry in the Southwest.</i> August 2002.	Milken Institute	Ross DeVol	Policy Brief offering a blueprint for developing regional high-tech clusters using the case of the microsystems industry in the Southwest.	Microsystems cluster - microelectronics, MicroElectroMechanical systems, and optoelectronics.	Southwest US	Clustering arises from agglomeraton or centripetal forces such as labor-force pooling, supplier networks, and technology spillovers. High-velocity labor markets facilitate transformation of ideas into innovations and new companies leading to continual change and cluster evolution and growth. Cluster represents value-chains of broadly defined industry sectors including related suppliers and specialized infrastructure. Industry dispersion or centrifugal forces in competition were classified as immobile factors, supply-side factors, and demand factors.	Recommendations for building a Southwest microsystems cluster focused on: Technology Development Factors, Microsystems Development Strategies, Commercialization, Venture Capital, Education.

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>Blueprint for the Future: Napa Valley Construction Industry Cluster Report.</i> 2000.	Napa Valley Economic Development Corporation (NVEDC)	NVEDC	The project was undertaken to reinforce and strengthen the community goal for a high quality of life through strong business performance and wealth creating infrastructure and environment.	Construction	Napa Valley	Cluster based on SIC definition developed by NVEDC. SIC industries include: 15, 16, 17, 24, 32, 52. Analysis included: number and size of firms, employment, retail sales, payroll, and construction valuations. Sources included: EDD, Dun & Bradstreet, U.S. 1997 Economic Census.	The report documents that Napa has a rich diversity of construction-related industries, and that a construction industry cluster plan should have goals that address the permitting process, employee base, and underground economy.
<i>A Critical Analysis of the Local Biotechnology Industry Cluster in Alameda, Contra Costa, and Solano Counties.</i> June 2002.	Bay Area Bioscience Center, et al.	Tapan Munroe (Munroe Consulting Inc.), Gary Craft (Craft Consulting Group), David Hutton (Hutton Associates)	To develop public policies that sustain and enhance the biotechnology industry, and to develop workforce strategies for local residents in the industry.	Biotechnology	East Bay - Alameda, Contra Costa, & Solano Counties	The study analyses the structure of the industry, its employment base, prospects for future growth, impediments to growth, and opportunities for sustaining the industry in the tri-county region. The biotechnology industry Cluster is based on a tri-county database of biotechnology firms. Utilized GIS mapping; identified cluster segments (R&D, testing, production, etc) at the city and county level; measured number of firms, total employment, job growth, and average firm size. Conducted inventory of assets: research, capital, cost factors, infrastructure, regulatory considerations, regional. Conducted competitiveness analysis from interviews, surveys, and secondary research. Conducted labor market analysis.	Support local research and commercialization of new technologies, encourage formation of new biotech firms, facilitate clustering through the construction of facilities around research institutions or in research parks.
<i>Clusters of Innovation Initiative: San Diego.</i> 2001.	Council on Competitiveness and regional project members	Michael Porter, Monitor Group, and ontheFrontier	An examination of the composition and performance of regional economies, how industry clusters develop and innovation arises, how clusters affect a region's economic future, and how a region can establish a strategy and action program.	Biosciences and Communications	San Diego	Diamond Framework of a cluster consisting of 1) Context for Firm Strategy & Rivalry; 2) Demand Condition; 3) Related & Supporting Industries; 4) Factor [input] Conditions including capital, entrepreneurs, knowledge transfer, intellectual infrastructure, workforce, infrastructure, and quality of life. Industries normally locate together that are linked by some external economies. Process - Initially defined at the state level: 1) Select prominent "core" industry in a field or part of economy and calculate locational correlations of all other industries with the core; 2) Calculate locational correlations between all pairs of industries in a general field and potentially related fields; 3) those sets of industries with statistically significant and substantial intercorrelations among each other define the cluster. Spurious correlations are eliminated using I/O tables, industry definitions, and industry knowledge.	Innovation increases productivity through new ideas, products and services and technologies. Productivity increases competitiveness. Competitiveness leads to prosperity and ultimately a higher standard of living.
<i>E-Tech: Missing the Green, Reassessing San Diego's Environmental Technology Cluster.</i> September 2000.	San Diego Regional Technology Alliance	SourcePoint (SANDAG), San Diego Workforce Partnership, Center for Applied Competitive Technologies	Explore the environmental technology industry, its general trends both nationally and regionally, and the prospects for reassessing how the region might encourage its future growth.	Environmental Technology	San Diego	Cluster established by SourcePoint and based on SIC codes of 3564, 3569, 3589, 3823, 3824, 3826, 3829. Cluster methodology: Employment Concentration Factor (ECF) – use of Location Quotients to identify export-oriented industries. Emerging clusters use either ECF or employment growth rates. Cluster Dependency Factor (CDF) – use of regional I/O models for ECF industries to identify supplier (CDF Cluster) industries and customer industries (CDF Industry). Strong flows of transactions identify value chain of ECF industry cluster. Economic Prosperity Factor (EPF) – use of average annual payroll per employee relative to all industry average to identify high-paying industries. Analysis included: Total employment over time, employment by 4-digit SIC, number of establishments, Average annual wages by SIC & cluster versus all San Diego industries and other clusters.	Cluster is small but could have big impact on region. Definition could possibly be expanded and refined to better capture the size, technologies, and potential benefits of the cluster to the region.

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>The Economic Future of the Sacramento Valley.</i> September 2001	New Valley Connexions (Great Valley Center and CA Technology, Trade and Commerce Agency partnership)	Collaborative Economics	A report to assess potential areas of economic activity, and identify those with the greatest potential.	Ten opportunity areas: Specialized agricultural products, Electronics, Wood products, Scientific and health products, Business and professional services, Health care, Tourism, Logistics, Software, Recreational Equipment.	Sacramento Valley counties: Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Placer, Yolo, Sacramento.	Innovation-driven economic growth model, because alternatives of population-driven and cost-driven models do not lead to a rising standard of living and long-term vitality. Cluster Analysis: Use of papers and publications to capture industry and technology trends. Identifies driving forces (globalization, technology, resources, trends, demographics, etc.). Identifies cluster components (outward oriented, support sectors, local infrastructure). Approach in analysis: industry base, what is creating opportunity for cluster, regional assets, and requirements for future growth of cluster. Measurements made of clusters: total employment, location quotient versus national, average wage, and establishments.	Six areas where leadership will be needed: Education & training; Entrepreneurship; Technology innovation; Physical infrastructure; Industry networking and recruitment; Quality of life.
<i>The Economic Future of the San Joaquin Valley.</i> January 2000.	New Valley Connexions (Great Valley Center and CA Technology, Trade and Commerce Agency partnership)	Collaborative Economics	A report to assess potential areas of economic activity, and identify those with the greatest potential.	Six opportunity areas: Flexible food manufacturing; Precision irrigation technology; Agriculture technology; Agile industrial manufacturing; Advanced logistics; Smart commerce and customer service.	San Joaquin Valley	Innovation-driven economic growth model because alternatives of population-driven and cost-driven models do not lead to a rising standard of living and long-term vitality. Cluster Analysis: Use of papers and publications to capture industry and technology trends. Identifies driving forces (globalization, technology, resources, trends, demographics, etc.). Identifies cluster components (outward oriented, support sectors, local infrastructure). Approach in analysis: industry base, what is creating opportunity for cluster, regional assets, and requirements for future growth of cluster. Measurements made of clusters: total employment, location quotient versus national, average wage, and establishments.	Seven recommendations to support the opportunity areas: Regional leadership, Cluster networks, Innovative workforce, Technology development community, Entrepreneurship, Regional identity, and Livability/environment.
<i>Fashion Forward: the Future of Apparel Manufacturing in Los Angeles.</i> February 2002.	Los Angeles County Workforce Preparation and Economic Development Collaborative	Community Development Technologies Center	Economic and workforce development for the industry cluster.	Apparel Manufacturing	Los Angeles	A cluster is defined as a group of functionally interconnected firms operating in a common geographical area. In addition to those firms directly involved in apparel manufacturing, there are hundreds of firms indirectly related to the manufacturing process that help the industry function. These firms include equipment manufacturers and suppliers, apparel software and hardware developers, fabric and notions suppliers, specialized business services, financial institutions, trade associations, educational institutions, wholesalers, distributors, and retailers, as well as importers and exporters. Together with manufacturing, these firms form the regional apparel cluster. The apparel industry described in this report consists of those firms that are directly involved in the manufacturing of clothing, regardless of where actual production takes place.	Implement early intervention and business incubation strategies; cross-promote the entertainment and fashion industries; develop flexible financing opportunities; develop local apparel industry exports, upgrade the skills of existing workers, and train new workers; promote apparel training programs in schools; provide professional development opportunities for instructors.
<i>From Harvest to Table: The Food Preparation Industry in Los Angeles County.</i> March 2001.	Community Development Technologies Center	Los Angeles Regional Workforce Preparation and Economic Development Collaborative	A detailed examination of both the food industry and its educational feeder system.	Food Preparation	Los Angeles	The study provides an overview of the industry, and discusses related activities that compose the industry cluster, such as grocery chains and bakeries. The researchers conduct a survey on employer personnel practices, and inventory education and training resources. Examples of promising practices in the culinary arts, and other food preparation training programs, are presented. Detailed appendices are included, including industry cluster geographical locations.	The researchers found many reoccurring themes involving public and vocational education, including: lack of funding; shortage of teachers with industry experience; limited access to commercial equipment; artificial barriers between vocational and academic education.
<i>Heart of gold: The Bioscience Industry in Southern California</i>	Los Angeles Regional Technology Alliance	K Lynn Farris, Joseph Deato, Wendy Hall	Defined and assess the strengths and weaknesses of the biosciences industry in Southern California	Biosciences - pharmaceuticals, medical devices, biotechnology, bio-agriculture, and environmental biotechnology.	Santa Barbara, Ventura, Los Angeles, Orange, San Bernardino, Riverside counties	Conducted two dozen interviews with individuals from Southern California's bioscience industry including universities, research institutions, public and private bioscience companies, investment firms, professional service firms, and industry organizations. Used data from federal and state agencies, private investment and research firms, industry organizations, and news media.	Region has many strengths but must confront serious challenges - shortage of real estate, matching labor pool with employers, increase awareness of investment opportunities to businesses, management experience in industry.

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>Identifying Regional Industry Clusters in California</i> . July 2000.	California Employment Development Department (EDD), Labor Market Information Division (LMID)	San Diego State University Foundation (Sergio Rey)	EDD issued an RFP for the development or identification of a practicable model(s) and methodology for defining and studying industry clusters in any area or region of the state.	Numerous clusters	California	Uses SIC-based data and IMPLAN input-output model for the State of California. Methodology: 1) A program containing 81 of the 170+ models is run to generate individual cluster profiles--lists of industries that are grouped to form clusters; 2) Each individual cluster profiles from step1 are used as inputs to generate "consensus cluster" profiles, which includes construction of a dissimilarity matrix of paired industries that were not placed in the same cluster by the 81 methodologies. This process is presented in a dendrogram. Trimming the dendrogram at different intermediate values generates alternative cluster profiles that can be examined for content and consistency.	Findings: 149 of 515 industries in model were identified as potential cluster members with an exportation orientation (LQ>1); 35 multi-industry clusters in CA included 114 industries. General manufacturing was the largest consensus cluster including 21 inter-related industries with 25 consisting of industry pairs only.
<i>Joint Venture's Internet Cluster Analysis</i> . 2000.	Joint Venture: Silicon Valley Network	A.T. Kearny	To identify and analyze Silicon Valley's position in the Internet economy.	Internet	Silicon Valley	Surveyed and interviewed approximately 100 Internet executives and experts to understand recent trends in globalization, and how they are impacting location choices. Research also used other sources: <i>Measuring the Internet Economy</i> , Cisco Systems and University of Texas, June 2000 by A.T. Kearny; <i>Computer Industry Almanac</i> ; International Data Corp.; <i>PricewaterhouseCoopers Moneytree Survey</i> ; North American Incubation Association; IPO Monitor; Network Solutions; Red Herring; Fortune e50;Webmergers.com; and Mergerstat Database.	The Valley continues to face challenges directed related to economic success, such as a high cost of living and a workforce gap. However, other magnets for internet clusters in the U.S. are beginning to face similar challenges.
<i>Metal Manufacturing in Los Angeles</i> . April 2000.	Los Angeles County Workforce Preparation and Economic Development Collaborative	Community Development Technologies Center	Economic and workforce development for the industry cluster.	Metal Manufacturing	Los Angeles	Clusters defined by production process (value-chain) and firm primary SIC code. SIC based definition: 33, 34, 35, 37 but also includes firms which provide services to the industry such as heat treating, plating, and finishing. Analysis included: employment and gains, firm size and ownership, and GIS maps of industry concentrations; Employer personnel practices from interviews; Inventory of education and training.	The industry has suffered from downsizing and restructuring, but opportunities exist to build a support system for the future. The new, technologically sophisticate nature of the industry needs to be emphasized, versus the old "smoke stack" perception. Good career paths exist.
<i>Next Silicon Valley: Riding the Waves of Innovation</i> . Dec. 2001	Joint Venture: Silicon Valley Network	Collaborative Economics	Describe how Silicon Valley goes through short-term economic cycles , longer-term waves of innovation, and external shocks that shape the Valley. Connect economic and social infrastructures to achieve regional goals through the next wave of innovation.	Information & communications technologies; biotechnology and information technologies; commercialization of nanotechnology & micromachining	Silicon Valley	Understanding the accelerating diffusion of technology and its volatility in the global economy and sharing this information widely. Fostering networking that renews the habitat for innovation and entrepreneurship, and promoting social innovation in addition to technology innovation. A review of Silicon Valles's waves of innovation during the past 50 years based upon various papers and publications. Technology and industry convergence also based upon various papers and publications. Biotechnology statistics from Baybio database.	Leaders need to create a resilient region. Being a leading economic innovator requires a new commitment to social innovation. Other recommendations include: developing a new technical workforce; mobility and support for lower income workers; building housing and strong neighborhoods; investing in early care and education; and connecting networks and building communities.
<i>Orange County Cluster Project</i> . June 2002.	Orange County Workforce Investment Board	Orange County Business Council	Justification for a cluster focus in Orange County.	Ten major clusters: Tourism, bus. & prof. services, health services, construction, computers/electronics, computer software, biomedical, communications, defense/aerospace, energy & environment.	Orange County	Identify major sources of Orange County jobs and output. The study found that 10 clusters represent 37% of Orange County jobs and 50% of its output. The cluster firms also represent growth areas for the County labor market. The study used EDD data, IMPLAN multipliers, OCBC analysis to prepare output estimates.	Recommends that the Orange County Workforce Investment Board use a cluster focused strategy , and a career ladder/progression perspective, to meet the needs of businesses and job seekers.

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>Planning for Shared Prosperity or Growing Inequality? An In-depth Look at San Diego's Leading Industry Clusters.</i> 2000.	Center on Policy Initiatives	Enrico Marcelli (University of MA), Sundari Baru and Donald Cohem (Center on Policy Initiatives)	Provide policymakers and economic development professionals with insights for a healthy economy, and educate workers, families and communities.	Communications, Biomedical, Biotech Products & Pharmaceuticals, Computer & Electronics Manufacturing, Defense & Transportation Manufacturing, Software & Computer Services, Business Services, Financial Services, and Environmental Technology	San Diego	Focusing on industry clusters alone does not increase the quality of other non-cluster industries that make up 82 percent of the jobs in San Diego. Consequently, the growing economic inequality will eventually inhibit overall regional growth. Cluster Methodology: 1) Developed Census Industrial Classification (CIC) crossover to SIC; 2) Refined SANDAG's 16 clusters using CIC-SIC match to identify 12 industry clusters; 3) Collapsed SANDAG clusters in order to boost the number of observations in any single category; 4) Used SIC based definition above with Dun & Bradstreet Unicore database to extract company information; 5) Geocoded companies by address; 6) Used geographic locations and employment to calculate employment densities 7) analyzed clustering by sub regional areas (SRAs).	Report urges policymakers to: create good full-time jobs with decent wages and benefits; Set job quality standards for low-wage industries using public and private influence; Establish "jobs impact reports" to evaluate job quality outcomes; Develop industry-specific systems of structured career ladders and skill development; Expand participation by workers and communities in regional economic development.
<i>Producing a Competitive Advantage: Agri-tech in the San Joaquin Valley.</i> December 2000.	New Valley Connexions (Great Valley Center and CA Technology, Trade and Commerce Agency partnership)	Nuffer, Smith, Tucker, Inc. and Willard Bishop Consulting, Ltd.	To provide San Joaquin Valley agricultural producers, processors, and affiliated busiesss and resources with information regarding dynamics of new economy and impact of environmental challenges to their success, and suggest areas to seize a competitive advantage.	Agricultural technologies	San Joaquin Valley	Model with an underlying premise that agri-food producers are best served by expanding beyond a commodity perspective, and understanding and finding solutions for the driving forces that are shaping the new consumer- and technology-driven marketplace. Authors developed a model for Valley producers and processors to demonstrate the dynamics of the new marketplace, impact of environmental challenges, implications for agriculture, and areas to seize competitive advantages. Model discusses implications of trends in mass market fragmentation, consolidation of food distribution chains, globalization, technology, and environmental challenges -- land, air and water.	Redefine the role of production agriculture, and facilitate an education initiative to help individual producers and processors better understand the changes they face. Make the Valley a center for R&D for agri-based new product development. Provide the SJ Valley agricultural community with access to broadband technology infrastructure. Develop a marketing identify, including brands.
<i>San Diego Regional Employment Clusters: Engines of the Modern Economy.</i> May-June 1998.	SANDAG / SourcePoint	A compilation from numerous cluster studies prepared by SANDAG / SourcePoint staff for its readers.	BiMonthly publication of <i>SANDAG Info</i> with this issue profiling the regions clusters	Visitor Industry Services, Business Services, Medical Services, Computers & Electronics, Biociences, Defense & Transportation, Entertainment & Amusement, Software & Computer Services, Communications, Financial Services, Recreational goods, Biomedical products, Horticulture, Environmental Technology, Fruits & Vegetables.	San Diego	Clusters were Identified using three criteria applied to employment data reported at the four-digit SIC code level. Employment Concentration Factor (ECF) – use of Location Quotients to identify export-oriented industries. Note: Emerging clusters use either ECF or employment growth rates. Cluster Dependency Factor (CDF) – use of regional I/O models for ECF industries to identify supplier (CDF Cluster) industries and customer industries (CDF Industry). Strong flows of transactions identify value chain of ECF industry cluster. Economic Prosperity Factor (EPF) – use of average annual payroll per employee relative to all industry average to identify high-paying industries.	By providing a compilation of San Diego cluster studies, the publication was designed to inform and assist planning in the region.
<i>San Diego Surf meets Silicon Sand, An examination of Industry Growth, Employment Trends, and Training Opportunities for San Diego's Digital Media Industry.</i> 2000.	SANDAG	SourcePoint (SANDAG), San Diego Workforce Partnership, Center for Applied Competitive Technologies	To explore how digital media manifests itself in San Diego and how the region might augment it.	Digital new media industry	San Diego	Cluster proxy established by SourcePoint and based on SIC codes of 7371, 7372, 7379, 7812, 7819. Analysis included: Number of firms, payroll, employment, regional concentrations, OES occupations, job skill requirements, training programs. Utilized interviews, focus groups, and SkillsNet.	To remain competitive, the industry must invest in new technologies and the skills of current and incoming employees. Business, education, and training must work together.

MATRIX OF SELECTED CALIFORNIA INDUSTRY CLUSTER STUDIES

Report	Organizations	Researchers	Purpose	Target Clusters	Region	Research Approach	Findings / Recommendations
<i>San Diego's Biosciences Industry Cluster, A Regional Employment Study</i> . 2000.	San Diego Workforce Partnership Inc.	San Diego State University Foundation (Sergio Rey)	One of six reports to help the region direct its employment and training policies and resources toward supporting economic development.	Biosciences industries: 17 industries at the 4-digit SIC code level.	San Diego	Uses SIC-based data and IMPLAN input-output model for the State of California. Methodology: 1) A program containing 81 of the 170+ models is run to generate individual cluster profiles -- lists of industries that are grouped to form clusters. 2) The individual cluster profiles from step 1 are used as inputs to generate "consensus cluster" profiles, which includes construction of a dissimilarity matrix of paired industries that were not placed in the same cluster by the 81 methodologies. This process is presented in a dendrogram. Trimming the dendrogram at different intermediate values generates alternative cluster profiles that can be examined for content and consistency.	Biosciences cluster likely to experience significant growth over next two yrs. Virtually all major occupations are likely to grow. Demand exceeds supply in most bioscience occupations. Gap exists between skills needed now and in 2-5 yrs. Skills needed are associated with education at Masters and Ph.D levels.
<i>San Diego's Medical Services Industry Cluster: A Regional Employment Study</i> . 2000.	San Diego Workforce Partnership Inc.	Applied Development Economics	Help San Diego residents make better training and career decisions; allow education and training providers to better target programs and services; enable employers to make better business decisions; and guide policy makers in support of economic development initiatives.	Medical Services	San Diego	Medical Services cluster defined by SANDAG, and includes industries primarily offering health services to the general public through hospitals, medical facilities, and offices. The analysis included employment trends, occupational trends, projected growth, wages, training availability, interviews, and surveys. Identifying Clusters: 1) Employment Concentration Factor (ECF) – use of Location Quotients to identify export-oriented industries; 2) Cluster Dependency Factor (CDF) – use of regional I/O models for ECF industries to identify supplier (CDF Cluster) industries and customer industries (CDF Industry). Strong flows of transactions identify value chain of ECF industry cluster; 3) Economic Prosperity Factor (EPF) – use of average annual payroll per employee relative to all industry average to identify high-paying industries.	Recommendations: develop a pool of candidates to become RNs; create innovative career paths throughout the cluster; determine the demand for universal occupational categories and skill sets; build and adopt cluster and education training providers.
<i>Wireless Wonders: Assessing San Diego's Wireless Industry</i> . 2000.	San Diego Regional Technology Alliance	SDRTA, SourcePoint (SANDAG), San Diego Workforce Partnership, Center for Applied Competitive Technologies	Increase understanding of emerging technologies in the San Diego Region.	Wireless Telecommunications	San Diego	Broadly defined as communications industry within which wireless resides. (SIC codes consisting of 3661, 3663, 3669, 4812, 4899.) Employment Concentration Factor (ECF) – use of Location Quotients to identify export-oriented industries. Emerging clusters use either ECF or employment growth rates. Cluster Dependency Factor (CDF) – use of regional I/O models for ECF industries to identify supplier (CDF Cluster) industries and customer industries (CDF Industry). Strong flows of transactions identify value chain of ECF industry cluster. Economic Prosperity Factor (EPF) – use of average annual payroll per employee relative to all industry average to identify high-paying industries.	The industry continues to grow and increase employment; however, it faces regional labor shortages that mirror national trends.